3-1972

Effectiveness of Educational Film and Programmed Instruction in Training Food Service Personnel

Alma Jo Gault
University of Tennessee, Knoxville

To the Graduate Council:

I am submitting herewith a thesis written by Alma Jo Gault entitled "Effectiveness of Educational Film and Programmed Instruction in Training Food Service Personnel." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Food Science and Technology.

Mary Jo Hitchcock, Major Professor

We have read this thesis and recommend its acceptance:

David G. Craig, Grayce E. Goertz

Accepted for the Council:
Dixie L. Thompson

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

November 29, 1971

To the Graduate Council:

I am submitting herewith a thesis written by Alma Jo Gault entitled "Effectiveness of Educational Film and Programmed Instruction in Training Food Service Personnel." I recommend that it be accepted for nine quarter hours of credit in partial fulfillment of the requirements for the degree of Master of Science, with a major in Institution Administration.

Mary J. Hitchcock
Major Professor

We have read this thesis
and recommend its acceptance:

David G. Craig

Bruce E. Buerki

Accepted for the Council:

Vice Chancellor for
Graduate Studies and Research

EFFECTIVENESS OF EDUCATIONAL FILM AND PROGRAMMED INSTRUCTION IN TRAINING FOOD SERVICE PERSONNEL

A Thesis

Presented to

the Graduate Council of

The University of Tennessee

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

by

Alma Jo Gault

March 1972

ACKNOWLEDGEMENTS

Appreciation is expressed to Dr. Mary Jo Hitchcock for her guidance in planning, collecting data, and writing this thesis. Appreciation is given also to Dr. Grayce E. Goertz and Dr. David G. Craig for their contributions as committee members.

The author recognizes gratefully the cooperation of The University of Tennessee, Knoxville food service and its employees who participated in this study.

A special word of thanks is given to the authors's parents for their assistance and encouragement.

ABSTRACT

The effectiveness of an educational film and programmed instruction in training food service personnel was investigated. Fourteen food service employees received training on the prevention of falls in the kitchen by viewing an educational film. Twelve food service employees received training on the same topic by completing a unit of programmed instruction.

Before receiving the training, each employee completed a pretest to measure his present knowledge of the subject matter. After receiving the training, each employee completed a first posttest to measure the learning that had occurred. One week later a second posttest was given to each employee to measure the retention of knowledge. The order of the questions was changed randomly on the pretest and posttests.

Pretest and posttest scores were compared with a "t" test. Correlation coefficients and partial correlation coefficients were computed between test scores, the level of education completed and the total length of time worked in food service jobs.

Both experimental groups indicated equivalent knowledge concerning the prevention of falls at the beginning of the study. Comparison of the scores on the first and second posttests indicated that comparable gains in knowledge and retention occurred when either the educational film or programmed instruction was used.

Based on the pretest and posttest scores of employees viewing the film and completing the program, a recommendation for these two training techniques for food service personnel seems warranted. Either of these training techniques or the two techniques used in combination offer possibilities for the dietitian to maintain a continuing training program for the food service personnel.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

The rapid growth of the food service industry has focused attention upon the manpower needs of the industry. The demand for labor is predicted to reach seven million by 1980 (Kotschevar, 1969). This prediction of needed manpower emphasizes the need of attracting and maintaining an efficient labor force.

Problems associated with food service employees include low productivity of workers (Greenaway, 1964; Hall, 1969; Lattin, 1969; O'Malley, 1969), high labor turnover rates (Haberl, 1967; Rockwell et al., 1960; Sumbingco et al., 1969; Winter, 1969), chronic shortage of adequately trained personnel (Carter et al., 1964; Hubbard et al., 1968; McCarthy, 1969), and lack of training programs (Hall, 1969; Kotschevar, 1969; Moss, 1969; Sumbingco et al., 1969).

Training is the key to alleviating many of the problems of the food service industry. Any operation regardless of size requires certain minimum training programs (Antil, 1970; Jernigan, 1967). Training must be a continuing activity and must be designed to meet the needs of all employees (Chidester, 1967; Hall, 1969; Jernigan, 1967; Sumbingco et al., 1969).

The predicted growth of the food service industry emphasizes the need of well-trained employees. Instructional techniques are needed to

train personnel for the food service industry and to maintain a continuous, dynamic training program to keep these employees informed of new techniques, procedures, and information.

The problem was to compare the effectiveness of an educational film and a unit of programmed instruction in training food service personnel. The uniqueness of this study was that these two training techniques had not been compared as to their effectiveness in training food service employees.

CHAPTER II

REVIEW OF LITERATURE

I. AN OVERVIEW OF THE FOOD SERVICE INDUSTRY

The food service industry is one of the largest, most dynamic and fastest growing industries in America today. Many economists have recognized the food service industry as the fastest growing sector of the nation's economy (O'Malley, 1969). Sales within the food service industry are expected to double in volume by 1977, from about $23 billion for publicly purchased meals and beverages at the end of 1966 to $46 billion by 1977 (Lattin, 1969).

In 1969, Hall indicated that three and one-third million people were employed by the food service industry, and this figure could be expected to grow steadily in the foreseeable future. Two million of the three and one-third million employed in the industry work in public eating places. The remainder work in the "institutional" segment such as hospitals, schools and colleges, and hotels or in other types of business where food is sold but is not the major product such as department stores and drug stores.

In 1967 the United States Department of Labor estimated that the food service industry employed approximately two million workers in 335,000 establishments (Kotschevar, 1969). About 165,000 units in department stores, hotels, hospitals, schools and colleges, inplant feeding cafeterias, commercial airlines, railroads and shiplines were not counted. If all the workers in all the establishments were counted

it would be found that the food service industry employs from four to five million people, possibly making the industry the largest single industrial employer in the country.

In its estimates the government has said that the food service industry will need about 150,000 new workers each year until approximately 1980 which is a seven and one-half percent increase per year (Kotschevar, 1969). By 1980, four million new workers, or double the number now in the industry, will be needed to fill all of the positions. Since some of these new workers would replace those that retire, die or leave the industry, the work force should reach seven million by 1980.

More than 150,000 openings are expected annually in the food service industry through the mid-1970's, but many of these openings will be the result of labor turnover (Winter, 1969). Lattin (1969) estimated that the food service industry will require 75,000 workers in newly created jobs and 175,000 workers as replacements in existing jobs during the next decade. Of the total estimate of 250,000 new workers required each year, it was estimated that 10 percent, or 25,000 workers will be required for management or supervisory jobs; 16 percent, or 40,000 workers for technical or skilled jobs; 44 percent, or 110,000 workers for non-technical or unskilled jobs involving experience and training; 30 percent, or 75,000 workers for non-technical or unskilled jobs.

Hall (1969) predicted that approximately 25,000 new workers would be required each year for jobs involving management and supervision.

Approximately 40,000 new workers would be needed annually for jobs which are technical and skilled and which necessitate substantial training before employment such as cooks, chefs and bakers. The large number of other new workers will be required for jobs which are essentially non-technical but where training before employment is becoming increasingly mandatory such as waiters, waitresses and salad men.

In contrast, Burritt (1967) recognized the continuous increase of labor expense and predicted that fewer employees would be in the kitchens of tomorrow to offset this increased expense. Management will use more mechanization and automation, include the use of more convenience foods on the menu, employ more skillful and better educated persons, and improve production output through changes in the physical layout of the food service.

Efficient and effective training techniques are necessary to strengthen food service training programs. These improved training programs are needed to meet the needs of an increasing supply of adequately trained personnel.

II. IMPORTANCE OF TRAINING

The food service industry cannot function without well-trained employees, properly placed and properly motivated. The industry can operate without some of the frills of technology, but it cannot survive without the basics of essential manpower (O'Malley, 1969). Problems related to food service personnel include low productivity of workers,

high labor turnover rates, chronic shortage of adequately trained personnel and lack of effective training programs.

As labor costs have increased at the rate of 5 percent annually, the food service industry productivity has been going down at the rate of 1 percent annually (Bounds, 1967). In other words, not as much work is being done in the same amount of time. The productivity of restaurant workers tended to be at the bottom of the list in relation to other business (Greenaway, 1964; Lattin, 1969). Manufacturing industries and chemical industries achieve a productivity level approaching 80 percent, whereas Lattin (1969) noted that for the food service field the median figure for productivity level is 43 percent.

Low productivity of the food service industry was attributed partly to its role as a "service" industry and partly to its diversity among types of establishments (Hall, 1969), to the equipment and layout of kitchen facilities (Burritt, 1967), and to improperly trained employees. Lattin (1969) noted that productivity could be increased through better relations with employees, with elimination of waste in the food service, and with proper scheduling of employees.

The high labor turnover rate was mentioned frequently in the literature as a personnel problem. The high labor turnover in all food services was recognized by Baden (1967), Haborl (1967), and Moss (1969).

A survey of vacancies and turnover in 3,800 food establishments was conducted by Moss (1969). No single factor was found to be directly responsible for the large number of vacancies or high labor turnover rates in individual establishments. Apparently, a combination of factors

such as the wage rates, the working conditions, lack of adequate training and promotional opportunities, and the many female, seasonal and part-time workers have acted together to intensify the manpower problems confronting the food service industry.

A study on the rate of personnel turnover at a hospital in Wilmington, Delaware was conducted by Rockwell et al. (1960). The unanimous conclusion of a group of experienced men from local industry was that the most important single contributing factor in controlling turnover was supervision.

Winter (1969) suggested that the rate of labor turnover would be decreased with a careful selection and hiring process of quality individuals to work in food service and that substantial investment be put into training programs for employees. The companies that do succeed are the ones that recognize something can and must be done to upgrade the skills and ability of their employees.

The chronic shortage of adequately trained personnel will become even more evident in the future as the demand for labor continues toward the predicted seven million by 1980 (Kotschevar, 1969). Since other industries will have similar needs for workers, each industry will be competing for the available labor.

Haberl (1967), Daub (1968), and Moss (1969) recognized the shortage of skilled food preparation and service workers. Moss (1969) found in his study that the largest number of unfilled positions existed in the kitchen helper category.

In today's competitive food service field, it is extremely important for each employee to reach his greatest potential and to attain the goals of the food service. Successful, continuous training is an important factor in reducing the low productivity of the food service industry. This training must fit the needs of both the employee and the employer.

III. PRESENT TRAINING PROGRAMS AND FUTURE TRENDS

The growth of the food service industry may be limited by its capability to obtain, to train and retain the qualified people needed to support its development. The importance of a dynamic on-going training program cannot be over emphasized.

More must be done to sell food service jobs to young people. The recruiting program must be stepped up, and workers may have to be offered more to get them (Kotschevar, 1969; Lattin, 1969; O'Malley, 1969). Forward-looking industry leaders have mobilized forces to tell their story to young people and to lend their personal and financial support to educational industry (Hall, 1969).

Sources of labor that are barely tapped today must be drawn upon in the future. These sources of labor include the slow and the limited learner (Kotschevar, 1969). Many handicapped workers have been trained for employment in the food service industry (Moss, 1969). Workers of minority groups have been provided jobs at the lowest level; now training programs must prepare them for supervisory and management roles (Winter, 1969).

Vocational education, mainly composed of adult education courses and high school curricula, accounted for more than 80 percent of all formal training for restaurant occupations in 1967 (Moss, 1969). These vocational education areas included distributive education, trade and industry, and home economics. Courses were offered for more than 25 restaurant occupations by these three vocational education areas. The bulk of trade and industry training was for cooks and chefs, whereas distributive education offered instruction for restaurant equipment salesmen, vending machine collectors, and food concession managers. Home economics included course work for school lunch program directors, cafeteria or lunch room managers, and caterers.

With emphasis on training food service employees, dietitians, food service managers, and supervisors have looked for new methods and techniques that are efficient, effective and economical approaches to solving their training problem (Antil, 1970; Anonymous, 1968; Chidester, 1967). The training need may be divided into three broad categories: orientation of the new employee, retraining of all employees because of the rapid changes in the sciences and practices associated with diet, and supervisory and management training for the supervisory staff.

In-service training in the Nutrition Department, University of Iowa Hospitals as reported by Baden (1967) has four facets: (1) orientation and training of employees on an individual and small-group basis, (2) training of supervisors, (3) group training of all personnel, and (4) continuing education of the staff and employees. These facets also

characterize the training of food service employees at The University of Tennessee, Knoxville. Twice a year all employees attend workshops planned specifically for them, and supervisory personnel receive in-depth training once a year.

Training should be a constant process as recommended by Jernigan (1967). The best time to get a point across is when the learner has a question and when there is a need. But it is not always possible for the teacher to be in the right place at the right time to do this kind of training.

In the past, employee training has depended largely on the availability of qualified supervisory personnel who could devote the time required to do the training. However, there are a number of factors that make it difficult to maintain a continuing, dynamic training program for food service personnel. These factors which make continuous employee education difficult include: (1) a shortage of instructors, (2) insufficient time of supervisory personnel, (3) lack of supervisors who are experienced teachers, (4) lack of supervisors who are specialists in efficient work methods, (5) the training need usually for one or two employees at a specific location and time rather than for a large class on a standard schedule, and (6) lack of time for repetitive teaching (Carter et al., 1964; Hartman, 1964; Middleton et al., 1965; Sumbingco et al., 1969).

It is not that supervisory personnel do not want to improve the abilities of their employees but that many times the supervisory personnel

capable of training have other, more pressing duties (Middleton et al., 1965). In many cases, the lack of time to prepare training material and/or the lack of good instructors results in a training program of poor quality. An expert teacher is needed who knows good work methods and is available when the employee needs help.

Audio-visual media and auto-instruction are two training techniques that offer possibilities for solving training problems. The characteristics of these training techniques emphasize their usefulness to a teacher.

Educational Film

There are three sizes of instructional film in common use, 35mm, 16 mm, and 8 mm. The 35mm is slide film while 16mm and 8mm are motion-picture films (Fern et al., 1946). Sound motion-picture film has perforations or sprocket holes along one side of the film only. The unperforated side of the 16mm sound motion-picture film carries the sound track.

A film is essentially a multiple technique of communication combining sight and sound (Elliott, 1948). Facts are presented realistically; human relations and events are dramatized; attitudes are communicated; the unseen can be seen; phenomena for scientific study and analysis is recorded and reproduced. From some film, pupils have learned faster and remembered a body of subject matter longer than when the same material was presented verbally (May et al., 1958). Films have been used successfully to facilitate thinking and problem solving as well as motivating the further study of a topic.

Film lends itself to extensive variation in the way it may be used in teaching situations (Elliott, 1948). The chief educational value of films in teaching is their power to communicate concepts involving motion. Film has the power to communicate ideas in a realistic concrete manner not possessed by language; ideas presented on film have meaning, and extensive verbal explanation is unnecessary. Educational film may be used in connection with all types of learning. It furnishes a model for the learner to imitate in developing sensory motor coordinations, builds up vivid rich associations and memories, and presents problems for solution. Film is a time-saving educational tool. It saves hours formerly spent on field trips by bringing such experiences into the classroom, introduces and summarizes topics in a brief effective manner, and creates interest.

Advantages of the educational film are that (1) information prepared by recognized authorities in their respective fields may be presented to a larger number of learners than might be possible otherwise; (2) elaborate demonstrations, expensive techniques and actual scenes may be incorporated into training programs; (3) an easily reproduced record of a technique or procedure is provided; (4) an understanding is given to the relationships of things, ideas and events (Calvin, 1969). There are disadvantages in using educational films. Good films are expensive to produce and to buy (Elliott, 1948). Projection equipment is expensive and requires care. Space may not be available for showing films. Films are perishable and do not withstand wear

and tear like many other less expensive teaching materials. Training personnel often have difficulty securing a film when it is most needed, or teachers lack adequate training in the intelligent use of films and/or of the equipment. Finally, there are limitations in the nature of the film itself. Normally the film moves at a predetermined speed and does not allow the viewer to go at his own rate.

In reviewing the literature, the only study found that was concerned with the use of films or slides in food service training programs was that of Middleton et al. (1965). They studied the potential for using a tape recorder and slide projector to train food service employees in the breading of foods. Audio-visual instruction may help to solve the ever-present problem of employee training in the rapidly expanding food service industry concluded Middleton et al. (1965).

Programmed Instruction

Schramm (1964) defined programmed instruction as

> the kind of learning experience in which a program takes the place of a tutor for the student and leads him through a set of specified behaviors designed and sequenced to make it more probable that he will behave in a given desired way in the future. . . .

Programmed instruction simulates the relationship between a teacher and a student by presenting material and asking questions to ascertain if the student has mastered it well enough to proceed to new facts that build on previously learned information (Downing, 1965; Moore et al., 1967; Smith et al., 1962).

Many approaches are being used currently in writing programs (Deterline, 1962; Lysaught et al., 1963; Lumsdaine et al., 1960). The

two principal types are linear programs and branching programs. Linear programs have one sequence of steps which each student must follow. Branching programs use multiple-choice questions that allow the author to develop alternative steps for the student who selects incorrect answers.

The successful achievement of learning in programmed instruction can be attributed to the very characteristics of programmed instruction itself: (1) small steps, (2) active participation, (3) immediate knowledge of results, and (4) self-pacing (Chidester, 1967; Filep, 1963; Pipe, 1966). Among the advantages of programmed learning are these same characteristics. Small steps allow flexibility to meet individual differences so that the learner can proceed according to his knowledge of the subject matter. Active participation requires the person to give full concentration to the subject matter and make a response in each small step. With an immediate knowledge of results, the person discovers whether he is right or wrong as soon as he has made a response. This immediate feedback is believed to be the main reason for the retention of knowledge and understanding. Self-pacing makes it possible for each person to work at his own rate of learning without fear of competition from anyone.

Programmed instruction is perhaps more interesting for what it makes possible in education than for what it is in itself (Chidester, 1967). If a dietitian has seven courses for food service personnel in programmed form, she may teach all seven subjects at the same time to seven different persons or groups. Each will be moving through

his program at his own most comfortable pace, and a new student may enter the study area at any time. If the basic program exists, it can be used as a basis for a correspondence course, or employees could complete the programs anywhere.

Programmed instruction does have limitations. Few programs are available in the food service field. Time is needed to develop the programs. Persons must be trained to write programs, and learners must be able to read to complete the program. Not all subject matter or techniques may be suited for programmed instruction such as those involving motion.

The rapid growth of programmed instruction in industrial situations other than food service has signified its great potential as a training technique. It is adaptable for food service employees who may be unaccustomed to studying and reading, who have been away from school for some years, and are learning practical job tasks (Sumbingco et al., 1969).

In the area of food service, few studies have been done with the programmed instruction technique (Middleton et al., 1965; Sumbingco et al., 1969). Carter et al. (1964) made a preliminary investigation using a teaching machine to instruct food service employees on sanitation principles. Apley (1964) programmed instruction for a course on banquet table setting and serving; Middleton et al. (1965) programmed the breading of foods. These studies indicated the need for more research into the use of programmed instruction in training food service employees.

A review of the literature indicated that studies concerning the effectiveness of educational film and programmed instruction in training food service personnel had not been conducted. With the small number of teaching dietitians and their limited-time, training techniques are needed that may be used more than once and in a variety of situations. These two training techniques may be used again and again once a film is produced and a program is developed. The effectiveness of film and a program in training was evaluated in this study.

Training the new employee in safety practices was found to be essential before putting him on the job (Uhler, 1969). Continuing training programs concerning safety in the food service facility should be provided regardless of the size of the unit. Therefore, the subject for the educational film and programmed instruction was selected to emphasize the importance of safety in a food service operation.

CHAPTER III

PROCEDURE

The effectiveness of an educational film and programmed instruction in training food service personnel was compared in this study. The subjects were 26 employees from The University of Tennessee, Knoxville food service who were at work when the training was given. The film was shown to 14 employees at the Presidential Court food service unit. The programmed instruction was used with 12 employees at the University Center food service unit.

The prevention of falls in the kitchen was chosen as the topic for this study after reviewing the 1969-1970 accident reports for The University of Tennessee, Knoxville food service. These reports indicated that falls caused the greatest number of injuries to employees. More falls occurred in each of the above food service units than in the other four units on campus.

The training film obtained was entitled "Kitchen Safety: Preventing Falls" and was produced by the National Educational Media, Inc., in cooperation with the Culinary Arts Department of the Los Angeles Trade-Technical College (Anonymous, 1969). The eight minute, 16mm film was designed to help train kitchen personnel to recognize that hazards could cause falls. Floors, stairways, and ladders were identified as the three main places where falls occur in a food service department.

The worker was expected to learn what procedure to follow to prevent falls. The film attempted to develop the attitude that accidents could be prevented and that safety was everybody's job.

Since programmed instruction was not available on the prevention of falls in food services, the initial step was to write a program (Appendix B). A 24- frame linear program with fill-in-the-blank responses was developed. An outline was made of the material covered in the educational film, and a first draft of the program was written.

An objective-type test for use as a measuring instrument to determine if the individual had learned what he was to learn was developed (Appendix C). This test will be referred to as the pretest and posttest hereafter. The pretest, first posttest, and second posttest were composed of the same 20 true-false and multiple choice questions, but the order of the questions was changed randomly.

The Gunning Fog Index was used to determine the reading level of the written material (Gunning, 1962). The readability of the material was found by analyzing various 100-word samples of the program. The program had a seventh grade reading level. According to Gunning, 80 percent of the people in the United States have reached at least an eighth grade reading level.

A personal data sheet (Appendix C) was developed for completion by each employee. The information requested included age, sex, level of education completed, any type of food service training, number and type of previous food service jobs, and the length of time on previous and present food service jobs.

Prior to the administration of the program and tests, the format and wording were reviewed for clarity and technical validity. To accomplish this, the program, tests and personal data sheet were administered to five randomly selected University of Tennessee, Knoxville food service employees at the Morrill Hall food service unit. These employees represented the group for which the program was written. The unit of programmed instruction, tests and personal data sheet were acceptable for use in the study following a few editorial changes.

Subjects completed the pretest immediately before receiving information on the prevention of falls in the kitchen using both teaching techniques to determine their knowledge in this area. The two training sessions were in the early afternoon. The film was shown to the employees in one of the dining rooms at the Presidential Court food service unit. The program was administered in the cafeteria at the University Center food service unit. After completion of the respective training techniques, the first posttest was given to each employee. One week later the second posttest was given to each employee to measure the amount of retention of learning.

The pretest scores and the changes of the scores from the pretest to the first posttest and the second posttest were analyzed by completing an unpaired, pooled variance "t" test for both groups (Snedecor, 1967). The variability of the pretest score was removed by subtracting the score of the pretest from the posttest scores and using the change in the scores. A paired "t" test was completed on the pretest versus

the first posttest scores of each individual and on the initial posttest scores versus the second posttest scores of each individual.

Correlation coefficients were computed between education and experience. Partial coefficients of correlations were computed with the level of education as the variable and total experience being held constant for each of the three tests. Likewise, partial correlations were computed with experience as the variable and level of education held constant for the three tests.

CHAPTER IV

RESULTS AND DISCUSSION

The effectiveness of an educational film and programmed instruction in training food service personnel was compared in this study. Facts considered to determine the effectiveness of these two teaching approaches were (1) scores made on the pretest, first posttest, and second posttest; (2) the relationship of the amount of education and the total length of experience in food service jobs between the amount of learning and the retention of knowledge; (3) length of time required to complete the respective training techniques. All statistical tests of significance were made assuming an alpha risk of 0.05.

I. SCORES ON PRETEST, FIRST POSTTEST, AND SECOND POSTTEST

The pretest was intended to determine the current knowledge of each employee concerning the prevention of falls in the kitchen. Pretest scores were similar for both experimental groups as indicated by the analysis of the scores on the pretest with an unpaired, pooled variance "t" test (Table 1). The arithmetic mean on the pretest for the group of employees viewing the educational film was 15.9, whereas the arithmetic mean for the group of employees completing the programmed instruction was 15.8. These data indicated that employees in the two experimental groups were equivalent in the amount of knowledge possessed concerning the prevention of falls in the kitchen at the beginning of the study.

Table 1. Average pretest scores[a] and changes in first and second posttest scores for employees who received training.

Training Method	Pretest Scores	Score Changes from Pretest to First Posttest	Paired "t" Between Pretest and First Posttest	Score Changes Between Posttests	Paired "t" Between Posttests
Educational Film	+15.9 ± 2.3	+2.0 ± 2.2	+3.4*	+0.3 ± 1.9	+0.7
Programmed Instruction	+15.8 ± 2.8	+2.2 ± 1.8	+4.4*	-0.4 ± 1.9	-1.5
	-0.1[b]	+0.3[b]		-0.6[b]	

[a]Maximum score = 20.

[b]Unpaired, pooled variance "t" between training methods.

*Significant at 0.05 level.

The first posttest scores were significantly higher than the pretest scores for the group of employees viewing the educational film and for those completing the program. The mean-change scores of +2.0 for the group viewing the film and +2.2 for the group completing the program were not different when an unpaired, pooled variance "t" test was completed on the changes in the scores between the two groups.

The amount of learning by the subjects was significant for both methods of instruction in this study. Carter et al. (1964) also found that knowledge was increased significantly in the experimental groups as a result of having completed a program on the teaching machine. A significant difference was not found between the pretest and posttest scores for the control group that received no instruction in his experiment.

The mean-change scores on the first posttest and the second posttest for both experimental groups were not different. The second posttest scores were similar with the first posttest scores.

These results revealed that subjects either retained or improved their original performance which is in agreement with Sumbingco et al. (1969) who found similar results on retention of acquired knowledge. In this study reported herewith the knowledge was retained whether it was received from viewing a film or completing a program.

II. RELATIONSHIP OF EDUCATION AND EXPERIENCE TO AMOUNT OF LEARNING AND RETENTION OF KNOWLEDGE

Partial coefficients of correlations were computed to determine the relationship between two factors independent of a third factor. The effect of education on learning and of experience on learning were important to this study. Partial coefficients of correlations were an attempt to separate these two effects. Experience was computed as 10 years when it was greater than that amount.

A positive relationship existed between experience and second posttest scores ($r = +0.714$) for the partial correlation computation of employees viewing the film (Table 2). The more experienced the employee the better was his test score when the influence of education was held constant. Education and second posttest scores were related negatively ($r = -0.677$) for employees completing the programmed instruction when the partial correlation was computed with education being the variable and experience being held constant (Table 3).

Education and performance on the pretest were unrelated for all employees in this study (Tables 2 and 3). Education and first posttest scores ($r = +0.624$) showed a positive relationship, and experience and first posttest scores ($r = -0.603$) were related for the employees viewing the film. Likewise, education was related positively to second posttest scores for this same group ($r = +0.687$).

Education affected the amount of learning and the retention of knowledge in a positive manner. The longer the length of experience

Table 2. Simple and partial coefficients for correlations of experience and test scores.

Training Method	Pretest	First Posttest	Second Posttest
Educational Film	+0.282 (+0.436)[a]	-0.603* (+0.523)	+0.246 (+0.714*)
Programmed Instruction	-0.396 (+0.304)	+0.082 (+0.166)	-0.606* (-0.381)

[a]Data in parenthesis are partial correlations.

*Significant at 0.05 level.

Table 3. Simple and partial coefficients for correlations of education and test scores.

Training Method	Pretest	First Posttest	Second Posttest
Educational Film	+0.315 (+0.415)[a]	+0.624* (-0.493)	+0.687* (+0.355)
Programmed Instruction	+0.436 (-0.234)	+0.127 (+0.191)	-0.021 (-0.677*)

[a]Data in parenthesis are partial correlations.

*Significant at 0.05 level.

the lower were the first posttest scores. This relationship could indicate a lack of interest of the more experienced employee to try new ideas.

A negative relationship was found between experience and second posttest scores ($r = -0.606$) for employees completing the program (Table 2). The more experienced employee may be satisfied with his current knowledge and be less willing to remember and to use new information.

III. TIME REQUIRED TO COMPLETE RESPECTIVE TRAINING TECHNIQUES

Employees completing the unit of programmed instruction required varying lengths of time to finish the program (Appendix A, page 35). This difference in the length of time taken to complete the program emphasized the characteristic of self-pacing of programmed instruction. Each person was able to work at his own rate without fear of competition from anyone. The average length of time was 24.1 minutes; the standard deviation was 3.1. The wide range of time required to complete the program and first posttest, which was included in the program booklet, might be attributed to difference in individual rates of speed in reading and comprehension as well as prior knowledge of the subject matter.

The length of time required by the employees to view the film was constant, since the speed of the film could not be changed. This particular educational film was eight minutes in length.

IV. APPLICATION OF TRAINING TECHNIQUES

This study indicated that educational film and programmed instruction are potentially effective tools in training food service personnel. This study was limited by the sheer number of employees in the food service units and the equipment available. Test scores also reflected factors that may not be controlled such as the individual's attitude, the pressure that he was under, and other normal individual differences.

Either of these training techniques or the two techniques used in combination offer possibilities for the dietitian or food service manager to maintain a continuing training program for food service personnel. These two teaching techniques could be incorporated into a planned training program arranged in a training center in an available space in the food service facility. The subject matter and objectives dictate the media to be used in training. Instead of using 16 mm films, film loops could be obtained. Employees could use these self-instructional materials when their schedule best allowed them to utilize the training center. The unit of programmed instruction could be completed by employees at home.

Writing and testing programs are difficult, but the skills can be learned. The techniques will be valuable enough to warrant the expenditure of the time and money required to produce programs for a variety of employee training. An additional unit of programmed instruction is available for use in the food service industry as a result of this study.

CHAPTER V

SUMMARY

The effectiveness of an educational film and programmed instruction in training food service employees was studied. The educational film was obtained from the National Educational Media, Inc. Since programmed instruction on the prevention of falls in food services was not available, a 24-frame linear program was created. An outline was developed covering the material in the film, and a first draft of the program was written and revised for clarity and technical validity. The program was pretested with five food service employees. The unit of programmed instruction was ready for use after a few editorial changes.

The educational film and the programmed instruction were presented in a training session to two separate groups of food service employees. The educational setting was two food service units that had had the most falls recorded in the previous year's accident reports at The University of Tennessee, Knoxville.

The amount of learning that occurred during each training session was similar for both groups according to comparisons of pretest and first posttest scores. Also the amount of retention of knowledge was independent of the training method used.

Neither experience nor education was related to performance on the pretest. Experience and retention of knowledge were related positively when education was held constant for employees viewing the

film. Education and retention of knowledge were related negatively when experience was held constant for those completing the program.

Experience and amount of learning for employees viewing the film showed a positive relationship. Experience and retention of knowledge for those completing the program were related negatively. The education of the subjects influenced positively the amount of learning and retention of knowledge for those viewing the film.

The employees who completed the programmed instruction were able to set their own pace in completing the program showing a considerable variation in the time required for its completion. The film presentation was eight minutes in length.

Based on the pretest and posttest scores of employees viewing the film and completing the program, a recommendation for these two training techniques for food service workers seems warranted.

LIST OF REFERENCES

LIST OF REFERENCES

Anonymous. 1968. Kitchen of the month: Sparks Memorial Hospital, Ft. Smith. Hosp. and Nurs. Home Mngt. 4(4), 34-38.

Anonymous. 1969. "Kitchen Safety: Preventing Falls." Filmed by National Educational Media, Inc., Hollywood, Calif.

Antil, F. H. 1970. Training handbook. Volume Feeding Mngt. 35 (Sept.), 19-20.

Apley, N. 1964. Development and evaluation of an audiovisual training program for food service employees. Unpublished M. S. thesis, Kansas Sate University, Manhattan.

Baden, E. M. 1967. An in-service training program for dietary employees. J. Amer. Dietet. Assoc. 50, 216-218.

Bounds, A. 1967. Determining the need for food service personnel. School Lunch J. 21(10), 22.

Burritt, M. B. 1967. Projected labor costs in future food systems. The Cornell Hotel and Rest. Admin. Quart. 8(1), 55-64.

Calvin, A. D. 1969. "Programmed Instruction: Bold New Venture," pp. 10-12. Indiana University Press, Bloomington.

Carter, E. J., Moore, A. N., and Gregory, C. L. 1964. Can teaching machines help in training employees? J. Amer. Dietet. Assoc. 44, 271-276.

Chidester, F. H. 1967. Programmed instruction: past, present, and future. J. Amer. Dietet. Assoc. 51, 413-419.

Daub, E. F. 1968. A time table for training. Hosp. and Nurs. Home Food Mngt. 4(5), 17.

Deterline, W. A. 1962. "An Introduction to Programmed Instruction," pp. 9-23. Prentice-Hall, Inc., Englewood, N. J.

Downing, C. B. 1965. What is programmed instruction? J. Amer. Dietet. Assoc. 46, 39-42.

Elliott, G. M. 1948. "Film and Education," pp. 21-37. Philosophical Library, Inc., New York, N. Y.

Fern, G. H., and Robbins, E. 1946. "Teaching with Films." The Bruce Publishing Company, Milwaukee.

Filep, R. T. 1963. "Prospectives in Programming," pp. 2-15. The Macmillan Company, New York.

Greenaway, D. 1964. An overview of the food service industry. The Cornell Hotel and Rest. Admin. Quart. 5(2), 10-13.

Gunning, R. 1962. "The Technique of Clear Writing." McGraw-Hill Publishing Co., New York.

Haberl, F. J. 1967. A case history in hiring slow learners. The Cornell Hotel and Rest. Admin. Quart. 8(1), 43-48.

Hall, C. G. 1969. Education and the industry's future. The Cornell Hotel and Rest. Admin. Quart. 10(3), 21-23.

Hartman, J. 1964. Teaching machines can help dietitians. Mod. Hosp. 102 (June), 130.

Hubbard, R. M. I., and Donaldson, B. 1968. Estimating professional manpower needs for hospital dietary departments. J. Amer. Dietet. Assoc. 53, 211-215.

Jernigan, A. K. 1967. Inservice training, a necessity for increasing productivity. Hosp. 41 (Oct. 1), 115-118.

Kotschevar, L. H. 1969. Our future labor supply. Hosp. and Nurs. Home Food Mngt. 5(9), 8.

Lattin, G. W. 1969. Manpower projections for the food service industry. The Cornell Hotel and Rest. Admin. Quart. 10(1), 49-52.

Lumsdaine, A. A., and Glaser, R. 1960. "Teaching Machines and Programmed Instruction, a Source Book," pp. 2-32. Dept. of Audio-Visual Instruction, National Education Association, Washington.

Lysaught, J. P., and Williams, C. M. 1963. "A Guide to Programmed Instruction," pp. 1-28. John Wiley and Sons, Inc., New York.

May, M. A., and Lumsdaine, A. A. 1958. "Learning from Films," pp. 1-10. Yale University Press, New Haven.

McCarthy, E. F. 1969. Annual administrative reviews: food service and dietetics. Hosp. 43 (Apr. 1), 101-104.

Middleton, R., and Konz, S. A. 1965. Slides plus recorded commentary instruct food service workers. Hosp. 39 (Oct. 16), 91-96.

Moore, A. N., and Klachko, H. W. 1967. Problems in producing programs for auto-instruction. J. Amer. Dietet. Assoc. 51, 420-425.

Moss, A. L. 1969. Manpower shortage in food service. The Cornell Hotel and Rest. Admin. Quart. 10(1), 43-48.

O'Malley, P. L. 1969. Food service's year of decision. The Cornell Hotel and Rest. Admin. Quart. 10(1), 17, 21.

Pipe, P. 1966. "Practical Programming." Holt, Rinehart and Winston, Inc., New York.

Rockwell, J. A., and Vadakin, C. E. 1960. Turnover. A problem in employee relations. Hosp. Mngt. 89(1), 44-45, 91.

Schramm, W. 1964. The research on programmed instruction. U. S. Off. of Education, Washington.

Smith, W. I., and Moore, J. W. 1962. "Programmed Learning: Theory and Research," pp. 1-87. D. Van Nostrand Company, Inc., Princeton.

Snedecor, G. W. 1967. "Statistical Methods." Sixth edition. The Iowa State University Press, Ames, Iowa.

Sumbingco, S., Middleton, R., and Konz, S. A. 1969. Evaluating a programmed text for training food service employees. J. Amer. Dietet. Assoc. 54, 313-317.

Uhler, J. E. 1969. Training for safety. School and College Food Mngt. 5 (Apr.), 48-49, 52.

Winter, E. L. 1969. Manpower strategy. The Cornell Hotel and Rest. Admin. Quart. 10(1), 31-34.

APPENDIXES

APPENDIX A

Table 4. Individual scores[a] of employees viewing film.

Subject	Pretest Score	Initial Posttest Score	Second Posttest Score
1	19	17	18
2	18	19	20
3	11	10	15
4	17	19	18
5	12	16	16
6	15	18	18
7	18	19	19
8	14	20	20
9	16	20	19
10	18	19	19
11	15	17	16
12	16	20	20
13	17	20	20
14	17	17	17

[a]Maximum score = 20.

Table 5. Individual scores[a] of employees completing program.

Subject	Pretest Score	Initial Posttest Score	Second Posttest Score	Time[b] (Min.)
A	13	14	15	50
B	12	17	17	35
C	17	20	18	18
D	12	16	16	21
E	17	18	18	25
F	19	19	19	15
G	15	18	16	22
H	16	20	20	21
I	18	19	17	27
J	13	17	17	25
K	18	19	19	14
L	20	20	20	16

[a]Maximum score = 20.

[b]Number of minutes to complete program and initial posttest.

APPENDIX B

UNIT OF PROGRAMMED INSTRUCTION

KITCHEN SAFETY: PREVENTING FALLS

The material in this book is programmed. This may be a new term to some of you. It means the information is presented in a series of small steps, one at a time. Each page of the booklet contains sentences. Within some of the sentences there is a blank or blanks which you are to fill in. Each blank to be filled in is numbered. You will know what to write in the blanks from information given in the sentence or in previous sentences. After you have finished reading the sentences and filling in the blanks on a page, turn to the next page. In the left-hand margin of the new page you will find the correct word or words for the numbered blanks on the previous page. Also you will find a new sentence or sentences with blanks to fill in. Repeat the procedure; be sure to write your answer in the blank; then check the correctness of your answers by looking at the words in the left-hand margin of the next page.

Objectives

To develop within each person, the ability to:

1. Recognize the importance of preventing falls in the kitchen.
2. Identify the three main places where accidental falls occur in the kitchen.
3. Classify the common hazards that cause falls in the kitchen.
4. Recognize precautions to take to prevent falls from occurring in the kitchen.
5. Perceive that safety is everybody's responsibility and that accidents can be prevented.

You will find the correct answer to each blank in the left-hand margin of the following page.

This booklet is about preventing falls in the kitchen.

Falls cause the largest number of accidents in the

kitchen. Thus, it is very important to prevent

_____ in the kitchen.
1

1. falls

The floor, the stairways, and ladders are the three main places where accidental falls occur in the kitchen. It is your job to make sure that these areas are safe for yourself and for your fellow workers. The three main places where falls occur in the kitchen are the _____(2), the _____(3), and _____(4).

---

2. floor
3. stairways
4. ladders

Proper precautions should be taken to prevent falls. For each kind of fall there is a precaution that can be taken. Each of you may prevent falls if you are aware of the causes of falls. This booklet will point out the _____(5) of falls and proper _____(6) which should be taken to prevent falls.

---

5. causes
6. precautions

The floor is the most dangerous place in the kitchen which causes falls. The floor is the most dangerous object because it is often taken for granted. Special attention should be given to the _____(7), since it causes more falls than anything else in the kitchen.

7. floor

Wear safe, comfortable shoes with good soles. Never wear thin-soled shoes or broken down shoes. Do not wear high-heeled shoes to work. Instead wear low-heeled shoes with rubber heels. Thus, careful attention should be given to the _____ worn to work.
8

---

8. shoes

If you drop something on the floor, pick it up. Do not leave on the floor any object which you drop. Everything that drops on the floor must be _____ _____.
9 10

---

9. picked

10. up

If you spill something on the floor, wipe it up. All spills should be wiped up immediately. Be sure to wipe up all _____ immediately after they happen.
11

---

11. spills

If you spill grease on the floor, use a dry towel or a piece of burlap to wipe the floor dry immediately. Also sprinkle salt over the area to provide traction. Remember that grease spilled on the floor should be wiped up with a _____ _____ or a piece of _____ and then sprinkled with _____.
12 13 14 15

12. dry
13. towel
14. burlap
15. salt

When any other liquids are spilled on the floor, use a warm, soapy mop to wipe up the spill. Next dry mop the area to remove any excess soap and water. Thus, all liquids should be mopped up with a warm, soapy _____ (16) and then _____ (17) mopped.

---

16. mop
17. dry

After mopping, you should always mark the wet area with a big sign. The sign should be large enough to be seen and read. A sign will warn others that the floor is wet and slippery. Thus, after being mopped the wet area should be marked with a _____ (18) _____ (19).

---

18. big
19. sign

Thus far, you have learned that the largest number of accidents occurred in the kitchen are _____ (20). And the three main places where falls occur are the _____ (21), the _____ (22), and _____ (23). The most falls in the kitchen are caused by the _____ (24).

20. falls
21. floor
22. stairways
23. ladders
24. floor

To review, remember the following precautions to prevent falls. Wear safe, comfortable _____(25) with low, rubber heels. If you drop something on the floor, _____(26) _____(27) _____(28). If you _____(29) something on the floor, wipe it up immediately.

---

25. shoes
26. pick
27. it
28. up
29. spill

It is probably not your job to fix broken flooring, loose tiles or stair tread, or protruding nails. But it is your duty to report these conditions to the management when you see any of them in the kitchen. Your management will make sure that any of these conditions reported are repaired immediately. Thus, it is your duty to _____(30) to the _____(31) any unsafe condition that you see in the kitchen.

---

30. report
31. management

Walk, do not run down ramps or stairs, around work areas, or through hallways. Falls resulting from running are numerous. So remember to _____(32) not _____(33) in the kitchen.

32. walk
33. run

Aisles and stairways must be kept clean and free of brooms, pails, mops, cans, boxes, and all other objects. These objects cause you to trip and fall. Thus, falls can be prevented by keeping _____(34) and _____(35) free of all objects.

---

34. aisles
35. stairways

When entering a staircase area, you should always make sure that the stairs are properly lighted. In this way you can see your way as you go up or come down the staircase. It is important that you can always _____(36) where you are going when you are using the _____(37).

---

36. see
37. stairway

There are two more precautions that you may take when using the stairways. Always use the handrail and make sure you can see your feet. If your load is so big that you cannot use the handrail or see your feet, you will not be able to see any object that might be in your way. So using the _____(38) and making sure you can _____(39) _____(40) _____(41) will decrease the chance of your falling on the stairway.

38. handrail
39. see
40. your
41. feet

To summarize, stairways are one of the three main _____ where _____ occur in the kitchen. Precautions when using the stairways include keeping the area _____ of objects, such as brooms, mops, and boxes; making sure the stairways are properly _____; always using the _____; and always being able to see your _____.
(42) (43) (44) (45) (46) (47)

---

42. places
43. falls
44. free
45. lighted
46. handrail
47. feet

If you have to climb up to reach an item on a high shelf, you should use a ladder and not the lower shelves as steps. Boxes or crates are never sturdy enough for climbing and are too easy to fall from. Only a _____ is strong enough and safe enough to use in climbing.
(48)

---

48. ladder

When you use a ladder, always check the ladder itself to see that it is in good condition; make sure that the ladder is placed securely against the support; and test the ladder with your weight. These precautions will help to keep you from falling off the ladder. Thus, always use a _____ that is in _____ _____, making sure that the ladder is placed _____, before you test your _____.
(49) (50) (51) (52) (53)

49. ladder
50. good
51. condition
52. securely
53. weight

To review, falls may occur when using a _____(54). So it is important to follow the safety tips when using a ladder. Use a ladder that is in good _____(55), that is placed _____(56), and that is strong enough to support your _____(57).

---

54. ladder
55. condition
56. securely
57. weight

The prevention of accidents is the responsibility of each of you. Accident prevention involves simple rules that can be learned and observed. Thus, each of _____(58) have the responsibility of _____(59) accidents.

---

58. you
59. preventing

Safety is everybody's job, and it takes the interest of everyone to prevent falls. Anyone may fall in the kitchen, but with everyone working to prevent falls the number of falls will decrease. Therefore, _____(60) is _____(61) job.

60. safety
61. everybody's

As you go about your duties, remember to avoid the common causes of falls that you have just read about. By knowing and avoiding the hazards that can cause _____(62)_____, you will protect your safety and the safety of those you work with. Remember that the common places where falls occur are the _____(63)_____, the _____(64)_____, and _____(65)_____.

---

62. falls
63. floor
64. stairways
65. ladders

You have just completed a program on the prevention of falls in the kitchen. The next step is to answer the questions which are on the following pages.

APPENDIX C

PERSONAL DATA INFORMATION SHEET

PLEASE FILL IN EACH BLANK.

(1) Your Name_____

(2) Your Age_____ (3) Your Sex_____

(4) Draw a circle around the highest grade completed in school:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

(5) Have you ever had any technical, trade, or professional training for your job in a food service? (Circle one.) YES NO

If yes, what kind of training did you have and how long did it last?

_____

_____

_____

(6) How long have you worked in a University of Tennessee food service unit?

_____

(7) Have you ever worked in another food service? (Circle one.)

YES NO

If yes, where did you work and for how long?

_____

_____

_____

(8) What is your position (or job title)? _____

PRETEST

Your Name _____

QUESTIONS ABOUT PREVENTING FALLS IN THE KITCHEN

DIRECTIONS: Answer each question to the best of your ability. Answer each question as you come to it by circling the letter preceding your answer. Be sure to mark one and only one answer for each question.

1. True False Falls cause the largest number of accidents in the kitchen.

2. Which of the following groups of places are the three main places where falls occur in the kitchen? (Circle one of the three lines.)

   (a) stairways, storeroom, floors

   (b) floors, stairways, ladders

   (c) floors, storeroom, ladders

3. Proper [(a) causes; (b) precautions; (c) reports] should be taken to prevent accidents.

4. Shoes worn to work should be (a) thin-soled; (b) broken-down;

   (c) low-heeled with rubber heels.

5. True False The floor is the most dangerous object in the kitchen which causes falls.

6. If you drop something on the floor, (a) pick it up; (b) look at it;

   (c) cover it up.

7. After wiping up a grease spill, (a) sprinkle salt over the area;

   (b) dry mop the area; (c) cover the area with paper towels.

8. True False After mopping, you should always mark the wet area with a big sign.

9. True False Unsafe conditions should be reported to the management.

10. True False Always run in the kitchen.

11. When entering a staircase area, you should always make sure that (a) the area is properly lighted; (b) your co-worker is with you; (c) your eyes are open.

12. True False You should not be able to see your feet when using the stairway.

13. If you have to climb up to reach an item on a high shelf, (a) stand on the lower shelves; (b) use boxes or crates; (c) use a ladder.

14. When you use a ladder, always check the ladder to see that (a) one leg is longer than the other one; (b) the ladder is in good condition; (c) the ladder is painted bright red.

15. True False Proper precautions should be taken to prevent falls from occurring.

16. True False Falls that occur from ladders are one of the three main places where falls occur.

17. Always use the [(a) wall; (b) handrail; (c) walking cane] when using the stairways.

18. Use [(a) a dry towel; (b) a piece of burlap; (c) or either one of these] to wipe up a grease spill.

19. Safety is (a) your job; (b) management's job; (c) everybody's job.

20. True False The prevention of accidents involves simples rules that can be learned and observed.

Please check to make sure that you have marked ONE answer for each question.

POSTTEST

Your Name_____

QUESTIONS ABOUT PREVENTING FALLS IN THE KITCHEN

DIRECTIONS: The following questions are based on what you have just seen and heard about falls in the kitchen. Answer each question to the best of your ability. Answer each question as you come to it by circling the letter preceding your answer. Be sure to mark one and only one answer for each question.

1. True False After mopping, you should always mark the wet area with a big sign.

2. If you have to climb up to reach an item on a high shelf,

   (a) stand on the lower shelves; (b) use boxes or crates;

   (c) use a ladder.

3. Proper [(a) causes; (b) precautions; (c) reports] should be taken

   to prevent accidents.

4. Shoes worn to work should be (a) thin-soled; (b) broken-down;

   (c) low-heeled with rubber heels.

5. True False Falls that occur from ladders are one of the three main places where falls occur.

6. Always use the [(a) wall; (b) handrail; (c) walking cane] when using

   the stairways.

7. Which of the following groups of places are the three main places where falls occur in the kitchen? (Circle one of the three lines.)

   (a) stairways, storeroom, floors

   (b) floors, stairways, ladders

   (c) floors, storeroom, ladders

8. If you drop something on the floor, (a) pick it up; (b) look at it;

   (c) cover it up.

9. True False Unsafe conditions should be reported to the management.

10. Safety is (a) your job; (b) management's job; (c) everybody's job.

11. True False Falls cause the largest number of accidents in the kitchen.

12. True False You should not be able to see your feet when using the stairway.

13. After wiping up a grease spill, (a) sprinkle salt over the area; (b) dry mop the area; (c) cover the area with paper towels.

14. When entering a staircase area, you should always make sure that (a) the area is properly lighted; (b) your co-worker is with you; (c) your eyes are open.

15. True False Always run in the kitchen.

16. When you use a ladder, always check the ladder to see that (a) one leg is longer than the other one; (b) the ladder is in good condition; (c) the ladder is painted bright red.

17. Use [(a) a dry towel; (b) a piece of burlap; (c) or either one of these] to wipe up a grease spill.

18. True False The prevention of accidents involves simple rules that can be learned and observed.

19. True False The floor is the most dangerous object in the kitchen which causes falls.

20. True False Proper precautions should be taken to prevent falls from occurring.

Please check to make sure that you have marked ONE answer for each question.

THANK YOU FOR YOUR COOPERATION!!!!

VITA

Alma Jo Gault was born in Knoxville, Tennessee on May 31, 1948. She attended Claxton Elementary School and graduated from Clinton High School in Clinton, Tennessee, in 1965. That September she entered The University of Tennessee, Knoxville, College of Home Economics, and in August 1969, she received the Bachelor of Science degree with majors in Food Science and Institution Administration, Home Demonstration Methods, and Vocational Home Economics.

In September 1969, she entered Graduate School at The University of Tennessee, Knoxville, and will complete requirements for the Master of Science degree with a major in Institution Administration in December 1971. While completing her graduate studies she worked as an Assistant Head Resident in one of the residence halls on campus.